

PARKER. (W. T.)

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THE MILITARY RED CROSS
CORPS.



BY

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(Munich),

Late A. A. Surgeon, U. S. Army; Medical Examiner, 3d District, R. I.; Member of the St. John's Ambulance Association, England, etc., etc.



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THE MILITARY RED CROSS CORPS.

BY W. THORNTON PARKER, M. D.
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Late A. A. Surgeon, U. S. Army ; Medical Examiner, 3d District, R. I. ; Member of the St. John's Ambulance Association, England, etc., etc.

AS an auxiliary to the regular hospital corps of the army, each regiment should be provided with a regimental bearer corps, or, more properly named, a Red Cross Corps.

The regimental Red Cross Corps should be organized as follows :

One surgeon with the rank of major.

One assistant-surgeon with the rank of captain.

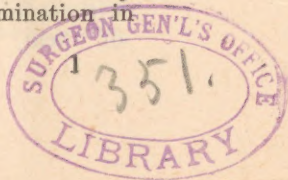
One assistant-surgeon with the rank of 1st lieutenant.

One Red Cross sergeant with the rank of quarter-master sergeant.

One assistant Red Cross sergeant with the rank of sergeant.

From each company, three men should be detailed as members of the Regimental Red Cross Corps.

All appointments in the Regimental Red Cross Corps should be made only after instruction and examination in first aid to the injured,



Every member of this corps, in addition to the insignia of his rank, shall wear upon his left arm the Geneva red cross upon a white band. This badge is to be worn whenever the regiment is under arms. This organization is to take the place of the old-time scratch system of employing musicians—a system which at best was a miserable apology for a practical efficient corps of trained men. Any one who has witnessed the failure of the system which at the latest moment, and usually in the heat of battle, sought to provide stretcher bearers from the regimental musicians, will readily agree that a regularly organized Red Cross Corps is of the greatest importance; and, instead of being an extravagance and detriment by removing available fighting men, adds not only to the esprit du corps, but by prompt and intelligent service prevents confusion and preserves order and quiet in the rear, a condition of things most desirable when a regiment is engaged in line of battle. Nor need we go back to the time of war and tumult to recognize the truth of these assertions. What can be more absurd and less effective at our militia sham battles or the autumn manœuvres of the regular forces than the sight of the little group of men, undisciplined and without an idea as to the work required of them, grouped about a medical

officer—one perhaps with a brandy-bottle, another with some bandages, but all devoid of the important and necessary instruction for first aid to the injured.

The details of Red Cross men report to the regimental medical staff whenever the regiment is to take part in military manœuvres, or in actual battle. The Red Cross Corps stack their arms at the position selected for regimental medical station in the field. To each squad of three men a stretcher is given with which to collect the wounded and transport them to the regimental medical station. At this place they receive the attention of the regimental surgeons before being carried to the brigade or division medical rendezvous. At these latter stations the regular army hospital corps are stationed, and the wounded taken in charge for final disposition.

The regimental surgeons will attach to each injured man a diagnosis card, stating name, rank, company, regiment and injury. The members of the Red Cross Corps, besides carrying at least one large canteen of water, shall be provided with a suitable bag, or Red Cross case, containing triangular bandages, stimulants, etc., for the immediate treatment of the injured wherever found. The regimental medical station shall be as near the line of battle as possible,

providing only for reasonable shelter from fire for the wounded.

The duties of the Red Cross Corps are primarily to search for the wounded, and to render all possible relief. They are expected to apply temporary dressings, such as the nature of the case may require, and to administer water,¹ and, when necessary, stimulants. The arms and accoutrements can be taken in charge by No. 2 of the squad, and the wounded carried carefully and as rapidly as possible to the regimental surgeons. To attend to these matters

¹ Water carts should be supplied to field hospitals and bearer companies. Simple wooden hogsheads (100 gallons) on a wheeled stand would suffice. These carts are drawn by a pair of horses. In the wars in the East skins are largely used for water carriers, and the human water carrier, or bihisti, is a conspicuous figure in every Eastern campaign. He carries water in a great skin masah borne upon the hips. He takes his place in the fighting front of the line and is often one of the most popular men attached to a company. Captain Jones of the British army has designed a water cart consisting of a galvanized iron tank. It contains 119 gallons, and has a man-hole with cover for filling and cleansing the tank. An iron partition divides the tank within into two compartments, and the partition is pierced with holes which allows the water to pass through gradually, thus breaking the rushing of the water about the wagon when the tank is partly full. There is one large tap and six small ones, thus allowing several canteens to be filled at the same time, which is of great importance when many men have to be supplied.

intelligently, it follows as a matter of course that they shall receive practical instruction in military first aid to the injured. A regular course of lectures should be given by one of the regimental surgeons, to which all members of the regiment should have access, and from those interested and proving themselves efficient the Red Cross Corps should be recruited.

The theoretical training should include :

1st. Outlines of anatomy of the human body, including a brief account of the osseous system and of the circulation of the blood.

2d. The different appliances used as a temporary dressing, viz.: field splints, tourniquets, bandages, and especially the *triangular* bandage and first field dressings in general.

Lastly : Practical instruction in the immediate treatment of gunshot wounds and of cases of emergency—occurring in military life—a description of ambulance and stretcher material and practical ambulance and stretcher drill.

The members of the corps should have frequent drilling in lifting and carrying the wounded, and this last instruction should be given only with some one *acting* as a wounded man. Nothing could be worse in the system of training than the mere pretence of lifting and carrying an empty stretcher.

Each drill should occupy a good hour, and should be carefully and thoroughly carried out. At times the wounded should be sought for when practicable by lantern light, receive field first aid and tourniquet, triangular bandage and temporary splint treatment and be placed upon the extemporized or regular field stretcher, conveyed some distance and be lifted into the ambulance. This drill should not be carried out without suitable explanation of the great importance of the system and all unnecessary haste or lack of precision should be most carefully avoided.

We will first consider the methods of constructing extemporary stretchers, and those furnished regularly by the military medical officers. The ordinary stretcher is composed of two poles, a canvas bottom and two slings, which are often absent or broken, and unfit for use. Where the regular canvas stretcher is absent extemporary stretchers must be made by the Red Cross Corps, from such materials as are usually at hand upon the battle-field.

The stretchers of the British army are the best to be found in any army of modern times, and probably the most perfect is that invented by Surgeon-Major Faris, which is in fact the English Army Regulation Stretcher. It is most solidly built, and consists of two

side poles of ash, brown canvas bottom, a pillow, two self-locking traverses, which lock under the stretcher and keep it open. There are four wheels of lignum vitæ, on which the stretcher rolls into the ambulance wagon, and which acts as legs when used as a camp bedstead, a use to which all army stretchers are liable. It weighs thirty-two pounds, and costs about \$15.00. This is, of course, too expensive and complicated for general use, and would be used only at brigade or division medical centres.

The improved stretchers now in use in the New York and other hospitals are especially to be recommended.¹ These stretchers each consist of three pieces of heavy canvas of equal size, the ends of which, being turned over and firmly stitched down, leave a sleeve through which poles are passed; the three pieces being placed one after another on these two parallel poles, which extend far enough beyond for handles, furnish a convenient and strong litter on which to carry the patient from the scene of accident. Two iron cross-bars, having rings to admit the poles, are used to extend the stretcher. The canvas is divided into three pieces, for the comfort of the patient when the stretcher

¹ "Reference Hand-Book of the Medical Sciences," Vol. I, page 129.

is taken from under him. In doing this the poles are first withdrawn, the head is raised and one piece slid out; next the pelvis and then the feet are lifted, and the other sections are in turn removed, so that, without disturbing the patient to any great extent, the orderly at the hospital can place him in bed.

Where the regular canvas stretcher is not obtainable, blankets, knapsacks, overcoats, dresscoats and trousers can, with poles or rifles, be made into excellent stretchers. The clothing-case of light canvas, invented by the author, weighs only $8\frac{1}{2}$ ounces. Three of these can be readily fastened upon rifles, making an excellent stretcher for the transport of the wounded. The case is made of a strip of light canvas, four feet six inches long, and sixteen or eighteen inches wide, folded longitudinally, so that a margin of two or more inches is left along one edge for a flap. It is divided transversely into three equal compartments by two sets of stitches. The margin is buttoned over on six buttons, the buttonholes being on the flap and the buttons on the farther edge and reverse side of the case. Loops at either end enable the soldier to wear it securely at the ends without its being rolled in the blanket. The case will hold the ordinary soldier's kit, and is intended to be worn in the rolled

blanket, suspended from the left shoulder, giving the right arm full play, and allowing the utmost freedom in the performance of the most important exercises in the manual of arms. The clothing-case does away with the necessity for the heavy and wearisome knapsacks. Soldiers will not carry knapsacks, but the clothing-case can be carried for many days without fatigue. The loops already mentioned can be secured by a drawn cord or strap, and the rifles slipped between the folds thus formed will make a most serviceable stretcher. When the soldier reaches a field or post hospital, and during transport in the ambulance, his clothing-case will provide, when folded, a most welcome and useful pillow.

Such clothing cases could be used either when filled or emptied. If used when the cases are *full*, just as good a stretcher can be made, and the effects of the soldier, his change of clothing, etc., are brought directly to the hospital.

In battles where sailors or marines take part, hammocks could be used, the old-fashioned boarding pikes making excellent poles, or flag-poles of boats or rifles could be used for the

Vide *Army and Navy Register*, Aug. 15, 1885.
 Vide *Jour. Amer. Med. Assoc'n*, Mar. 6, 1886.
 Vide "Reference Hand-Book Med. Science,"
 Vol. III, page 722.

same purpose. Whenever rifles are used, the cartridge should be removed before they are safe to act as poles. In the Crimean war several fatal injuries to wounded were inflicted by neglect of this precaution.

The "Wheeled Support," or stretcher on wheels, is, under certain circumstances, a very useful method of transport; but for the confusion and hurry of the battle-field is not practical. Horse-chairs, for wounded who can sit up, are only advisable for troops on the march, and will not be considered in this monograph. The mule-litter, for transporting wounded in a recumbent position, is, for the same reason, omitted from detailed description.

Blankets can be folded and tied with strings to form with rifles a very firm stretcher. If time permits, some attempt at cross-pieces should be made. This can be done with the bayonet when nothing else presents itself for use. A common sack, with poles or rifles, will answer for an extempore stretcher.

A stretcher can be run up of saplings of sufficient strength, with cross-pieces and the body made of cloth, calico, flannel or any other like material. The cross-bits can be either tied or nailed on. Wood can be used for a bottom; but it should have a sack full of straw, hay, ferns or other soft mate-

rial placed over it. A stretcher can be formed of two rifles, poles or lances, with two or three interlaced belts.

Referring once more to the clothing case already described, it has occurred to me that for Red Cross Sergeants on the field no better case could be devised for carrying the necessary instruments and appliances to be used in first aid. The knapsacks, bags and haversacks in use in the hospital corps of the European and American armies are clumsy and very tiresome. The constant stooping and rising positions assumed by the medical attendants in ministering to the sick are made doubly irksome by the clumsy and heavy bags and haversacks suspended by a strap which often cuts deeply into the shoulder of the wearer.¹ I have devised a case for a Red Cross Sergeant made in the same fashion, but of different material from that used by the soldiers and sailors, who wear theirs inside the rolled blanket. This case is to be made of brown waterproof cloth secured at the right side by two strong straps. When required for use it can be quickly unslung and opened, and as quickly closed and slung into position again.

The contents are as follows :

One hypodermic needle and rubber-stoppered bottle containing Magendie's

¹*Boston Med. and Surg. Journal*, March 31, 1888.

solution, morphia; one-half pound Lawton's absorbent cotton in a flat package; six woven bandages, antiseptic; six first aid triangular bandages; one case isinglass plaster; one inch tape; one package, in flat wooden box, surgeon's adhesive plaster, three sponges in waterproof bag; two tourniquets, field; two tourniquets, Esmarch; one tin box wax candles and matches, or folding lantern; one Red Cross Sergeant's dressing case.

This case will be found of great practical convenience and can be furnished at reasonable expense and much below the cost of hospital knapsack bags and haversacks already in use.

A very good field stretcher can be formed at once with three of these cases, either full or empty, secured upon two rifles; the ends of the cases being folded over the rifle-stocks, and secured beneath, with number one holding the butts of the rifles as he would hold the stretcher handles, and number three holding the muzzles.

One of the best appliances for ready use in first aid to the injured is the Esmarch triangular bandage. This is a strip of cloth fifty inches long, triangular in shape, its greatest width being 24 inches. Upon the bandage are six pictures illustrating its use, and with the bandage is a little book describing its use.

These bandages can be obtained of the American Society for Instruction in First Aid to the Injured, New York City.

TRANSLATION.

FIRST AID TO THE INJURED.

Under this title the undersigned Society offers to persons in every state and condition—in the work-shops, manufactories, mines, and railroad organizations, engineering undertakings, to all travelers and emigrants, and to any thoughtful family—an emergency packet for wound-dressing, which, thanks to its small, compact form, its convenient arrangement and facility of packing, will give it a place everywhere; it can be carried under all circumstances. Each one of these packets contains: First, a compress composed of cotton-charpie of Dr. Burns, and an anti-septic bandage. These two kinds of bandage have the property of absorbing the fluids, blood and pus, and protect the wound against hurtful influences. 2. Two bands of linen, one wide, the other straight, with pins for fastening them. 3. Some “ping-hawar-yambi,” as a hæmostatic application. 4. A triangular piece of linen prescribed by Dr. von Esmarch. With the aid of this apparatus the majority of bandag-

ing operations may be accomplished without any special skill. The method is as follows: The compress, which is folded in four, unfolds in such a manner that the cotton lint will be covered entirely by the bandage (antiseptic), which gives a surface similar in form to a sheet of letter-paper. We cut off each time the requisite quantity for covering the wound. After having washed the latter, and controlled the hemorrhage by means of the application of the ping-hawaryambi, it is covered with a piece of the compress, which is fastened by means of the linen bandages, which, should the wound be upon the head, neck, trunk, or main parts of the extremities, is done by the use of the triangular bandage (Esmarch's). If it be a case of an open or deep wound, you form with the compress a pad proportioned to the size of the wound, which is introduced therein after previously saturating it with good olive oil, if this be within reach. According to the abundance of the secretions from the wound, it will be necessary to change the bandage once or oftener during the day; in this case, the same bandage and the same linen can be employed; but it is important to renew the compress or the pad. As to the employment of the Esmarch's bandage, we will quote the words of Professor Esmarch, who, in his celebrated work entitled "The

First Aid in Bandaging on the Field of Battle," expresses himself as follows :

"According to the part of the body wounded, the triangular bandage is used as follows : It is folded in the form of a cravat by rolling the point several times in the direction of the lower edge ; the oftener it is folded the narrower the bandage becomes. Under this form a practical bandage is made, not only for wounds upon the neck, but also for those on many other portions of the body ; for example, the eye, the forehead, the ears, the cheeks, the chin, and the lower jaw. It is employed in the same manner for the simple muscular wounds of the extremities, and for fixing the splints and other protective apparatus in the case of fractured bones ; besides making all of it as a sling for supporting the wounded arm. The manner of employing the bandage under this form is so simple that no particular description is necessary. The ends are well fastened by means of strong pins, or well knotted one with another. For dressing a wound on the head, or a simple scalp wound, the bandage is placed upon the head in such a manner that the lower border will be brought directly across the forehead, the point hanging towards the neck. Then the two ends are passed backwards, behind the ears, turned again and tied in front. The point hanging in front is

pulled down firmly, returned upon the head, and fastened on the top of the head with a pin (head bandage or cap).

“To bandage a wounded hand a small bandage is necessary. The hand is placed upon the opened bandage in such a manner that the wrist covers the middle of the lower edge, and the points of the fingers are directed to the pointed end of the bandage. The point is then turned backward over the hand in the direction of the forearm. The two remaining ends are crossed over the point of the bandage and tied on the other side of the wrist.

“For the foot the sole is placed on the middle of the bandage, so that the toes are directed towards the point. The point is then brought forward over the top of the foot and the two ends are passed around the malleolar processes, crossed on top of the foot and tied under the sole.

“We can also bandage the stump after amputation in the same manner. The superior border or biased edge is placed around the limb above the extremity of the stump, turned around the wound, the hanging point is brought up over the wound, and the two free ends are adjusted over these and tied.

“To comfortably sling or suspend a wounded arm the ends must be placed over the uninjured shoulder, and upon the neck sufficiently in front so that it

will readily pass around the neck to the other side, and it is there fastened, while the other end hangs in front of the body. We carefully place the bended arm upon the middle of the linen, advancing the point below the elbow several inches. Then the end which hangs before the arm is brought back to the side of the shoulder of the wounded arm and tied with the other end upon the back. Then the point is brought around the elbow and fastened with a pin. This bandage is called the large scarf or big sling bandage.

“For bandaging wounds upon the chest, the middle of the linen is placed upon the chest, the point raised and turned backward, passing over one shoulder, and the inferior border adjusted (at the waist) in the region where the chest and abdomen unite; then bringing the two ends backward and tying them together upon the back. The pointed end passed over the shoulder is then drawn down and made to pass under the knotted end, and adjusted by means of a pin or knot. For wounds on the back one proceeds in the same manner, but inversely. For wounds upon the shoulder, the bandage is cut into two equal parts, of which one is folded in cravat form, and is used as a little scarf for the forearm, whilst the other is placed upon the wounded shoulder in such a manner

that the point shall be upon the side of the neck and the superior border upon the middle of the forearm. The ends are then passed around the under side of the arm, crossed beneath the point of the elbow, and tied together on the exterior surface of the forearm. The point of the bandage is then slipped under the scarf at the neck, plaited back upon itself, and fastened with a pin at the top of the shoulder.

“In the same manner the bandage is placed upon the hip; and here we often need the entire bandage, because the upper part of the thigh is much larger than that of the arm. The inferior border of the bandage is passed around the largest part of the thigh, and the ends fastened with a double knot, but in the cases where the thigh is too large it is pinned. The point of the bandage is adjusted in the same manner as for the shoulder, by passing under the leather belt of the soldier, returned upon themselves and fastened with a pin. When there is no leather belt it will be necessary to use a second bandage folded in cravat form.”

THE DRILL.

Stretchers, in the proportion of one for every three men of the Red Cross Corps, will be laid out on the parade ground, in a row, at suitable intervals, and in such a manner as to allow the

corps to be drawn up about a dozen paces in the rear of them. The heads of the stretchers towards the company line.

The company will fall in, in single rank, with side arms only, under the supervision of the Red Cross Sergeant.

Corps, attention.

Count threes.

Count sections. At this command, No. 1 on the right of the line counts "one," the second No. 1, or the fourth man, "two," the third No. 1 counts "three," and so on.

Stand to stretchers. Quick, march. At the command the sections oblique right and left, and march in the direction of their stretchers; section "one" to the stretcher on the right; section "two" to the next, and so on.

Upon arriving at the stretchers, No. 1 takes station at the head, No. 3 at the foot, and No. 2 on the right centre.

Prepare Stretchers. — No. 3 faces about; No. 2 left face at the command *prepare*. At the word *stretchers*, all kneel on the left knee, and proceed to unbuckle the straps, separate the poles, hook in the "transverses," and stretch the canvas to the full extent. The free end of the pillow is next secured by No. 1. The slings on the handles of the poles are next secured. When this is completed, stations are taken as at first command, stand to stretchers.

“Fold-up” Stretchers.—No. 3 faces about; No. 2 left face. At the command stretchers, all kneel on the left knee and proceed to take off the slings, unfasten the “transverses,” and buckle the straps. This completed, all rise and resume the original position.

TO LIFT AND LOWER STRETCHERS.

Unity of action and steadiness of motion are the essential points to be remembered in stretcher drill, and especially in lifting the wounded.

Nos. 1 and 3 must accustom themselves to harmony in their work, acting simultaneously and steadily; No. 3 waiting for No. 1, should the latter not be quite ready to lift or lower. No. 1, when ready, will call out, “go on,” or if delayed, “stand fast.”

Lift Stretchers.—Nos. 1 and 3 stoop down; each man grasps a double sling at its centre with the fingers and thumb of the right hand, removes it from the handle, and places the sling over their shoulders, dividing it equally. Then slip the loops of the slings over the ends of the poles, commencing with the left, and then firmly grasp the poles. No. 1 says “ready,” and No. 2 replies “go on,” or “stand fast,” as the case may be. When both are ready, Nos 1 and 3 steadily raise the stretcher off the ground and stand up, holding the stretcher at the full extent of the

arms. No. 3 must closely conform to the movements of No. 1, so that the horizontal position of the stretcher may be maintained throughout. Directly No. 2 perceives that Nos. 1 and 3 have risen, he proceeds at once to adjust the slings on the neck and shoulders of No. 1, and afterwards on No. 3. As soon as he has attended to this, he will take his post on the right centre of the stretcher.

Lower Stretchers.—On the caution lower, Nos. 1 and 3 will be prepared to stoop; and at the word stretchers, both men lower the stretcher very cautiously to the ground. No. 3 again closely conforming to the movements of No. 1. They then each proceed to slip the loops of the slings off the ends of the poles, standing up remove the slings from their shoulders, replace them again on the handles, and then resume the position of attention as in the command stand by stretchers.

MARCHING WITH STRETCHERS.

The mode of progression of the bearers should be so regulated as to avoid any impulses being thereby communicated to the patient in the stretcher. This can best be accomplished by the *broken step*. Both bearers should take special care to march with an even step and not to lose time at the command *advance*. No. 1 steps off with the

right foot and No. 3 with the left. The pace should be quick time and not to exceed twenty inches in length, the feet should be kept close to the ground and the knees slightly bent, the motion should be a gliding step and not a springy walk. Each section should be so far as possible sized, men comprising it should be as nearly as possible of the same size and physique.

The stretcher *must* be maintained in the horizontal position on all occasions, and in a position as near the horizontal as possible—the inclination *downwards* in the latter case being towards the feet of the patient. On this account, where there is any difference in the height of the bearers, No. 1 should always be the taller man. Every effort should be constantly kept in mind to insure the greatest amount of safety to the patient who is being carried.

At the command stretchers *retire*, each detachment will wheel to the right about and continue the march.

LOADING AND UNLOADING STRETCHERS.

Stretchers advance.

Take post at wounded.

Lower stretchers.

Lift wounded.

Nos. 1 and 3 remove the slings, and take position at the head and feet of the wounded, No. 2. at the hips. The stretcher, whenever it is practicable,

should be left on the ground one pace to the rear, and in line with the patient's body. At the command, ready, from No. 1, all gently and firmly lift the patient, carrying him back and over the stretcher. Each man has to raise and lower a certain part of the weight of the patient's body; but all must act in concert, or else his injuries and sufferings may be seriously aggravated by want of attention to this all important point. The medical officer cadet of Red Cross Sergeant on duty immediately in the line of fire, or in the vicinity of the wounded now examines the patient, renders first aid—attaches descriptive card with name and rank, if possible—and orders *lift stretchers*. This command is executed as already explained.

In lifting the wounded, whether to place them on stretchers, or to carry by hand from the field, No. 1 passes his arms directly under the arms of the patient, and clasps his own hands and fingers in front of the wounded man's chest. This affords a strong grip, and does not generally add to the distress of the patient, or No. 1 can pass one hand round by the opposite axilla under the patient's neck, and the other under the shoulder nearest to him, and he is to avoid disturbing a broken arm. No. 2 passes his hand and arms under the patient's loins and hips, and No. 3 passes both arms under the lower limbs,

if there should happen to be a fracture, with one hand above and one below the seat of fracture in order to support it, and to prevent movement of the ends of the broken bone. As it facilitates the lifting the patient, if he possibly can he is now to be directed to clasp his arms round the neck of No. 1. bearer.

No. 1 now commands "Advance," and all step off as directed in the marching of detachments with stretchers. Where severe wounds have been received involving fractures of one or more bones, "first aid" must be rendered before patient is moved to the stretcher.

GENERAL RULES FOR THE PROPER CARRIAGE OF "STRETCHERS."

1. When braces or shoulder straps are used to assist the bearers in carrying stretchers, care should be taken at starting that they are buckled so that the parts supporting the poles are all at equal distances from the surface of the ground.

2. As most ground over which wounded have to be carried is likely to present irregularities of surface, it becomes an important matter for bearers to practise the carriage of stretchers, so as to acquire a facility of keeping the stretcher level, notwithstanding the ground is uneven. Bearers trained and habituated to this duty perform it with

ease and dexterity, irrespective of differences in their own respective heights; while those who have not practised it are not unlikely to cause considerable distress to the person carried, when they have to carry him up and down hill, in consequence of their deficient training. A concerted action of the front and rear bearers is necessary, and each must be aware what part he is to perform according as the end of the stretcher at which he is placed is rendered higher or lower by the unevenness of the surface over which they are passing. These rules are copied from Surgeon Longmore's Treatise on Ambulances, p. 173, *et seq.*

The act can readily be acquired by practising the carriage of the stretcher up and down steps. In this practice the front and rear bearers should occasionally change their respective positions. A bearer should also be carried on the stretcher in turn, so as to be made practically aware of the effects of even and uneven carriage.

3. If the ground over which the conveyance has to pass presents a general ascent, and the bearers are of different height, then the rear or No. 3 bearer should be the taller and stronger man, for his greater height and the greater strength of his arm will be useful in supporting and raising the stretcher up to the level of the end carried by the

foremost man. The weight of the stretcher will naturally be thrown in the direction of the man on the lower level.

4. If the ground presents a general *descent*, the front or No. 1 bearer should be taller and stronger for the same reason as those just given as regards No. 3 bearer under the opposite circumstances mentioned on Rule 2.

5. A sick or wounded person on a stretcher should be carried, if the ground be tolerably level, with his face looking towards the direction in which the bearers walk. The front of No. 1 bearer then supports the end of the stretcher at which the patient's feet are placed; the bearer near the patient's head is the rear bearer.

6. If the bearers have to carry the stretcher down hill, the rear or No. 3 bearer should support the end on which the patient's head is placed. The reverse position should be assumed by the bearers both as regards going up hill and going down hill, in case the patient being carried is suffering from a recent fracture of the thigh or leg.

7. The patient's comfort and welfare will be best consulted as a general principle by the arrangements named in Rule 6 and 7. Although under all circumstances the level position should be sought for as much as possible, still if the slope of the ground be such that

it cannot be attained, it appears desirable that the inclination downwards should be towards the feet rather than towards the head of the patient. But with regard to the exception named, the reverse position of the patient is directed, in order to prevent the weight of his body pushing the upper end of the broken bone down upon the helpless and motionless portion of the limb below the seat of fracture.

8. No attempt must be made to carry a helpless patient over a high fence or wall if it can possibly be avoided; it is always a dangerous proceeding. The danger is of course increased in proportion to the height of the wall or fence. But even if the wall be not much higher than one over which the bearers can step, the stretcher must be made to rest upon it, to the inconvenience and probable pain of the patient, while each bearer in succession gets over the obstruction; and it is better to avoid even this inconvenience, provided the avoidance does not entail great delay. If the fence or wall be high, either a portion of the wall should be thrown down, or a breach made in the fence, so that the patient may be carried through on the stretcher; or, if this be not readily practicable, the patient should be carried to a place where a gate or opening does already exist, notwithstanding the

distance to be traversed may be increased by the proceeding. It is better that the transportation should be somewhat delayed than the safety of the patient's limbs or life risked.

9. In crossing a ditch, dyke, or hollow, the stretcher should be first laid on the ground near its edge—Nos. 1 and 2 then descend. The stretcher with the patient upon it is afterwards advanced, Nos. 1 and 2 in the ditch supporting the front end of the stretcher, while the other end rests on the edge of the ground above. While thus supported, Nos. 3 and 4 descend. All the numbers now carry the stretcher to the opposite side; and the forepart now being made to rest on the edge of the ground, while the rear part is supported by Nos. 3 and 4 in the ditch, the Nos. 1 and 2 are left free to climb up. The stretcher is now pushed or lifted forward on the ground above, and rests there while Nos. 3 and 4 climb up. The bearers then carry the stretcher on.

10. On no account should a stretcher be permitted to be carried on the shoulders of two or four bearers. The evil of such a proceeding is not only that it is difficult to find several bearers of precisely the same height, so that a level position may be secured, but also that the wounded or sick person, if he should happen to fall from such a

height, owing to the helpless condition in which such a patient usually is, is not unlikely to sustain a serious aggravation of the injuries he may already be suffering from. Moreover, one of the bearers of a stretcher ought always to have his patient in view, so as to be aware of hemorrhage, fainting or other changes requiring attention taking place, and this cannot be done when the patient is carried on the shoulders. The height, too, is calculated to cause the patient uneasiness and fear of falling off, which is also desirable to avoid. For all these reasons, notwithstanding that bearers will often attempt to carry a patient on a stretcher upon their shoulders from the weight being borne more easily in that position or with a view of relieving a fatigued condition of the arms, the practice should be strictly forbidden.

Special care should always be taken to notice the part injured and the nature of the injury, as these determine in a great measure the position in which the patient should be placed during transport. In all cases the head should be kept low, and on no account pressed forward on the chest.

In wounds of the head care should be taken that it is not placed so that the injured part presses against the conveyance.

In wounds of the lower limb the pa-

tient should be laid upon his back, inclining towards the injured side—such position being less liable to cause motion in the broken bone during transport in cases of fracture.

In wounds of the upper limb, if the patient requires to be placed in a lying-down position, he should be laid on his back or on the uninjured side, as in cases of fracture there is less liability in such a position of the broken bones being injured during transport.

In wounds of the chest there is often a difficulty of breathing. In such cases the patient should be placed with the chest well raised, his body at the same time being inclined towards the injured side.

In wounds of the abdomen the patient should be laid upon the injured side with his legs drawn up, or if the wound be in the front of the abdomen, he should be placed upon his back and his legs drawn up, so as to bring the thighs as close to the belly as possible; a pack or other article being placed under his hams to keep his knees bent.

(Manual for the British Medical Staff Corps, page 115, 1885.)



